

[002] This application is a national stage completion of PCT/EP2003/009648 filed August 30, 2003 which claims priority from German Application Serial No. 102 41 006.2 filed September 5, 2002.

[003] FIELD OF THE INVENTION

[004] The invention relates to an electromagnetic selection device for a two-stage planetary gear set ~~in accordance with the preamble of claim 1 disclosed in DE-A 199 17 673.~~ ❖❖

[005] BACKGROUND OF THE INVENTION

[008] ~~The solution of said problem results from the features of claim 1.~~ It is of advantage here that any lever mechanism for motion transmission between electromagnet and sliding sleeve is eliminated thereby reducing the number of parts, since the armature is directly fastened - via a bearing - upon the sliding sleeve. Eliminated is also any play necessarily associated with a lever mechanism. Since the armature is situated within the transmission housing an aperture is eliminated and therewith a possible point of leakage in the wall of the transmission housing. ❖❖

[009] SUMMARY OF THE INVENTION

[014] BRIEF DESCRIPTION OF THE DRAWINGS

[015] ~~One embodiment of t~~ The invention is shown in the drawing and described in detail herebelow. In the drawing will now be described, by way of example, with reference to the accompanying drawings in which: ❖❖

[019] DETAILED DESCRIPTION OF THE INVENTION

[022] The sliding sleeve 14 has on its external periphery grooves (not shown) in which locking bolts engage to keep the sliding sleeve 14 in one of the switch positions. ❖❖

[023] The locking bolts are movable by an electromechanical actuation unit 29 radially to the transmission main axle where they engage under tension in the grooves and, by an electromagnet of the actuation unit 29, are drawn radially outwards so as to unlock the sliding sleeve 14. ↗

[024] The electromagnets of the selector unit and of the actuation unit 29 must, therefore, be controlled, that is, supplied with current, only when a selection process is being carried out. Aside from switchings the locking unit prevents an unintended displacement of the sliding sleeve 14. ↗

### Reference numerals

1 planetary gear set	21 fastening bolts
2 input shaft	22 magnet coil, left
3 output shaft	23 magnet coil, right
4 housing cover	24 armature
5 housing cover	24a armature slopes
6 transmission housing	24b armature slopes
7 driving sleeve	24c front surface
8 sun gear	24d front surface
9 planetary gear	<u>24l armature, left position</u> ↗
10 planet carrier	<u>24r armature, right position</u> ↗
11 ring gear	25 armature counterpart, left
12 outer coupling gearing (part 11)	24a slopes (part 24)
13 inner coupling gearing (part 14)	26 armature counterpart, right
14 sliding sleeve	27 magnet body
15 outer coupling gearing (part 7)	27a magnet body
16 outer coupling gearing (part 14)	27b magnet body
17 inner coupling gearing (part 18)	27c magnet body
18 brake disc	28 through hole
19 grooved ball bearing	29 electromagnetic actuating unit
20 selector unit	30 front-mounted structural unit